



**DEPARTMENT OF THE AIR FORCE**  
**HEADQUARTERS AIR FORCE CIVIL ENGINEER SUPPORT AGENCY**

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FROM: HQ AFCESA/CES  
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SUBJECT: **Engineering Technical Letter (ETL) 04-12: Energy Savings Performance Contracts (ESPC)**

**1. Purpose.** This ETL supersedes ETL 02-5, *Guidance for Energy Savings Performance Contracts (ESPC)*, 31 October 2002. This ETL presents parameters for implementing an ESPC.

**2. Application.** The main body of this ETL is divided into two parts: legislative overview and best business practices. The attachments are tools that have been developed to assist in applying the best business practices. This ETL applies to all ESPC work, including Air Force regional contracts, Air Force use of Army or Navy contracts, General Services Administration (GSA), Department of Energy (DOE), and individual base contracts.

**2.1. Authority:** Air Force Policy Directive (AFPD) 32-10, *Installations and Facilities*; Title 42, United States Code (U.S.C.), Section 8287, *National Energy Conservation Policy Act*; 10 U.S.C. 2865, *Energy Savings at Military Installations*; Public Law (P.L.) 102-486, *Energy Policy Act of 1992*, October 24, 1992; and 42 U.S.C. 8253, *Energy Policy Act of 1992*.

**2.2. Effective Date:** Immediately.

**2.3. Intended Users:** Major command (MAJCOM) civil engineers (CE), base civil engineers (BCE), base energy managers, base financial managers, and base contracting officers (CO).

**2.4. Coordination:** MAJCOM CE energy managers.

**3. Referenced Publications:**

**Note:** For more information on ESPCs, visit the Air Force Civil Engineer Support Agency (AFCESA) Web site: [http://www.afcesa.af.mil/ces/cesm/energy/cesm\\_espc.asp](http://www.afcesa.af.mil/ces/cesm/energy/cesm_espc.asp).

**3.1. Air Force:**

- AFPD 32-10, *Installations and Facilities*, available at <http://www.e-publishing.af.mil/>

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- Air Force Federal Acquisition Regulation Supplement (AFFARS) 5317.191, *Special Contracting Methods - Congressional Notification*, available at <http://www.safaq.hq.af.mil/contracting/affars/5317/library-5317.html>
- AFFARS 5341.201, *Acquiring Utility Services - Policy*, available at <http://www.safaq.hq.af.mil/contracting/affars/5341/library-5341.html>
- *Procedures for Using Air Force Regional Energy Savings Performance Contracts (RESCP) and Associated Task Orders*, available at [http://www.afcesa.af.mil/CES/cesm/energy/cesm\\_espctraining.asp](http://www.afcesa.af.mil/CES/cesm/energy/cesm_espctraining.asp).
- *Procedures for Using Army Regional Energy Savings Performance Contracts (ESCP) through MOA with AFCESA*, available at [http://www.afcesa.af.mil/CES/cesm/energy/cesm\\_espctraining.asp](http://www.afcesa.af.mil/CES/cesm/energy/cesm_espctraining.asp).

### 3.2. Executive Order (E.O.):

- E.O. 13123, *Greening the Government Through Efficient Energy Management*, available at <http://www.gsa.gov/Portal/gsa/ep/home.do?tabId=0>

### 3.3. Public Law:

- P.L. 102-486, *Energy Policy Act of 1992*, October 24, 1992, available at <http://apps.fss.gsa.gov/envirofficial-docs/epact-title1.cfm>

### 3.4. United States Code:

- 10 U.S.C. 2865, *Energy Savings at Military Installations*
- 31 U.S.C. 1301, *Purpose Act*
- 42 U.S.C. 8287, *National Energy Conservation Policy Act (NECPA)*
- 42 U.S.C. 8253, *Energy Policy Act of 1992*

All are available at <http://www.gpoaccess.gov/uscode/index.html>.

### 3.5. Code of Federal Regulations (CFR):

- Title 10, Code of Federal Regulations, Part 436, *Federal Energy Management and Planning Programs*, available at <http://www.gpoaccess.gov/cfr/index.html>

### 3.6. Federal Acquisition Regulation (FAR):

- FAR 8.4, *Federal Supply Schedules*
- FAR 31.205-7, *Contingencies*

Both are available at <http://www.arnet.gov/far/01-22/html/FARtoHTML.htm>.

### 3.7. National Institute of Standards and Technology (NIST):

- NIST Handbook 135, *Life-Cycle Costing Manual for the Federal Energy Management Program*, available at <http://fire.nist.gov/fire/firedocs/build96/art121.html>

- National Institute of Standards and Technology Interagency Report (NISTIR) 85-3273-17, *Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis* (current version) - annual supplement to NIST Handbook 135, available at <http://www.nist.gov/>

#### 4. Acronyms and Terms:

AFCESA	– Air Force Civil Engineer Support Agency
AFCESA/CES	– Air Force Civil Engineer Support Agency, Technical Support Directorate
AFCESA/CESM	– Air Force Civil Engineer Support Agency, Mechanical/Electrical Engineering Division
AFFARS	– Air Force Federal Acquisition Regulation Supplement
AFPD	– Air Force Policy Directive
BCE	– base civil engineer
CE	– civil engineer
CFR	– Code of Federal Regulations
CO	– contracting officer
DD	– Department of Defense (as used on forms)
DOE	– Department of Energy
ECM	– energy conservation measure
ECP	– energy conservation project
E.O.	– Executive Order
ESCO	– energy services company
ESPC	– Energy Savings Performance Contract
ETL	– Engineering Technical Letter
FAR	– Federal Acquisition Regulation
GSA	– General Services Administration
HVAC	– heating, ventilation, air conditioning
IDIQ	– indefinite delivery indefinite quantity
ILE/ILEH	– Office of the Civil Engineer, Housing Division
IPMVP	– international performance measurement and verification protocol
M&V	– measurement and verification
MAJCOM	– major command
MFH	– military family housing
MILCON	– military construction
MOA	– memorandum of agreement
NAF	– non-appropriated funds
NAVFAC	– Naval Facilities Command
NAVFACCO	– Naval Facilities Command Contract Office
NECPA	– National Energy Conservation Policy Act
NIST	– National Institute of Standards and Technology
NISTIR	– National Institute of Standards and Technology Interagency Report
O&M	– operations and maintenance
OH&P	– overhead and profit

OMB	– Office of Management and Budget
Phase I	– Initial energy audit of selected facilities
Phase II	– Detailed investment-grade energy audit of selected facilities
P.L.	– Public Law
POC	– point of contact
RESPC	– regional Energy Savings Performance Contracts
RCO	– regional contracting officer (AF contracts only)
SAF/AQC	– Assistant Deputy Secretary for Contracting
SIN	– Special Item Number
T-bill	– Treasury bill
TO	– task order
U.S.C.	– United States Code

**5. Background.** The Air Force has been tasked by several Executive Orders (E.O.) and the Energy Policy Act of 1992 to reduce energy consumption. Under the Energy Policy Act of 1992 (P.L. 102-486 and 42 U.S.C. 8253) and E.O. 13123, *Greening the Government Through Efficient Energy Management*, all Federal agencies must reduce their energy consumption 30 percent by fiscal year 2005 and 35 percent by fiscal year 2010, using fiscal year 1985 as a baseline. These directives require building surveys and programming of all energy projects with a 10-year or less payback.

**5.1. ESPC Use.** The Air Force can use ESPCs to help achieve energy reduction goals. Under an ESPC, the energy services company (ESCO) pays all up-front costs, identifies facility/equipment energy savings potential, then acquires, installs, operates, and where appropriate, maintains the equipment. The ESCO earns a share of resulting cost savings from the utility service account until the individual task order (TO) is paid off. During the past several years, ESPCs have been used to improve the energy efficiency at many installations. From this effort, many lessons learned were obtained from the bases, MAJCOMs, and the Air Force Civil Engineer Support Agency (AFCESA). This ETL takes those lessons learned and provides guidance in implementing an ESPC. By using this ETL, an ESPC can be implemented with assurance that the energy savings can be realistically measured and validated for the term of the ESPC while meeting the legal intent of the ESPC. If an ESPC is used effectively, an installation can reduce energy consumption and improve the base energy-consuming infrastructure.

## **5.2. ETL Attachments.**

**5.2.1. Attachment 1, Coordination Sheet (Optional).** This coordination sheet is provided to help ensure that all appropriate functions have reviewed and coordinated on a TO before the award. This sheet is an example of recommended coordinations and should be modified to meet the base/MAJCOM requirements. The base energy manager should be assigned as the point of contact (POC). Use this coordination sheet concurrently with Phase I/II reviews. The base CO should sign the coordination sheet last, indicating that all appropriate functions have coordinated on the TO.

**5.2.2.** Attachment 2, Recommended Minimum Instructions to ESCO. Attachment 2 lists recommended minimum instructions for the ESPC contractor. This list can be customized to meet base requirements. Discussing this list with the ESCO at the initial (kickoff) meeting will help avoid misunderstandings and lost effort.

**5.2.3.** Attachment 3, ESPC Considerations for the Base Energy Manager. Attachment 3 lists items the base energy manager should consider when implementing an ESPC. Each item provides an insight to potential problems that, if not addressed early in the process, could impact the base's success with the proposed TO. The list is not all-inclusive; add base issues as needed.

**5.3.** How to Access an ESPC. The Air Force can access an ESPC through the following contracts:

**5.3.1.** Air Force Regional Contracts. There are six regional contracts in place, and each has a regional contracting officer (RCO). RCOs delegate ordering authority to base COs once they have received ESPC training. Each regional contract has a maximum contract ceiling that the Mechanical/Electrical Engineering Division at AFCESA (AFCESA/CESM) tracks for the RCOs. Any Air Force base can use the regional contract awarded in its area, but each base must coordinate with its MAJCOM and personnel must receive ESPC training before proceeding with this option. *Procedures for Using Air Force Regional Energy Savings Performance Contracts (RESERP) and Associated Task Orders*, a step-by-step approach for implementing an ESPC, can be found on the AFCESA Web site at [http://www.afcesa.af.mil/ces/cesm/energy/cesm\\_espctraining.asp](http://www.afcesa.af.mil/ces/cesm/energy/cesm_espctraining.asp).

**5.3.2.** Individual Base Contracts. Several installations have developed and awarded an ESPC for their installation only. Any base can do this, but the process may take up to 18 months before an award takes place.

**5.3.3.** Army Contracts. Under the AFCESA MOA, the base may use Option A or Option B. Under Option A (USAESCH), Huntsville delegates ordering authority to Air Force COs at the requesting base after AFCESA has assured training in ESPC and a copy of the CO's warrant has been received. Under Option B (Full Service), the base must pay the Army to be trained and pay a service fee (about 1 percent of the base utility budget) for the Army to administer the ESPC for that base. The base will coordinate with the MAJCOM before proceeding with either option.

**5.3.4.** DOE Super ESPC Contracts. DOE has awarded six Regional Super ESPC and four Technology-Specific Super ESPC contracts available to all Federal agencies to implement energy projects for government-owned facilities within the geographic scope of the contracts. The Regional Super ESPCs may be used by Federal agencies in the United States, the District of Columbia, and all United States territories. The Technology-Specific Super ESPCs may be used for federally owned facilities worldwide. *Air Force Procedures Accessing Department of Energy (DOE) Regional Super ESPC and Technology Specific*

*Contracts*, a step-by-step approach, can be found on the AFCESA Web site at [http://www.afcesa.af.mil/ces/cesm/energy/cesm\\_espc.asp](http://www.afcesa.af.mil/ces/cesm/energy/cesm_espc.asp).

**5.3.5.** GSA Item Numbers. GSA has issued ESPC Special Item Numbers (SIN) under a Federal Supply Schedule, which is available to all Federal agencies by placing delivery orders with schedule contractors in accordance with FAR 8.4, *Federal Supply Schedules*.

## **6. Responsibilities:**

### **6.1. AFCESA:**

**6.1.1.** Develops ESPC procedures and guidance and provides training on the use and implementation of the ESPC to the CO, base energy manager, CE financial manager, base financial manager, MAJCOM representative, and a representative from the base legal office.

**6.1.2.** Supports the Air Force RCOs by tracking contract ceilings, administering ordering authority, and archiving awarded TOs.

**6.1.3.** Provides tools and expertise to assist in implementing an ESPC and acts as a clearinghouse for ESPC lessons learned.

**6.1.4.** Provides oversight responsibilities for administering the Army, Navy, GSA, and DOE ESPC contracts.

### **6.2. MAJCOM CE:**

**6.2.1.** Provides oversight and compliance with Air Force policies and guidance for the installation's ESPC program.

**6.2.2.** Submits the coordination sheet (optional) and the congressional notification letter (from base contracting) to the Deputy Assistant Secretary for Contracting (SAF/AQC) for all projects greater than \$10 million in investment costs (termination liability).

### **6.3. BCE Organization:**

**6.3.1.** Acts as the single POC for implementing the ESPC program.

**6.3.2.** Ensures that the base energy manager receives ESPC training before implementing an ESPC program, and that newly assigned personnel associated with the ESPC program receive this training for the term of the ESPC. The CE financial manager, base financial manager, and a representative from the base legal office should attend this training.

**6.3.3.** Ensures that the ESCO complies with continuing requirements for the term of the TO.

**6.3.4.** Annually verifies that the ESCO is meeting the guaranteed savings based on the requirements of the measurement and verification (M&V) plan for the term of the contract.

**6.3.5.** Assists base contracting in developing congressional notification packages and a letter for submission to the MAJCOM CE organization; ensures that appropriate CE coordination is obtained on the package prior to submittal to MAJCOM CE on all projects greater than \$10 million in investment costs (termination liability).

**6.4. Air Force Regional Contracting Officer (RCO):**

**6.4.1.** Has overall responsibility for monitoring and maintaining the regional ESPC contract ceiling as well as modifying the regional contract terms, conditions, and requirements.

**6.4.2.** Delegates ordering authority to base COs following AFCESA coordination that training has been completed.

**6.5. Contracting Officer (CO):**

**6.5.1.** Has overall responsibility to ensure that ESPC projects serve the best interest of the Air Force and are consistent with the terms and conditions of the Air Force regional contracts, ESPC legislation, and regulations.

**6.5.2.** Obtains ESPC training and requests ordering authorization.

**6.5.3.** Awards and administers all issued ESPC task orders.

**6.5.4.** Assembles energy team and serves as chairperson for all meetings with ESCO.

**7. ESPC Legislative Overview.**

**7.1. General Information.**

**7.1.1.** Contrary to typical acquisitions practices, specific legislative authority (42 U.S.C. 8287) allows the Air Force to enter into contracts to take on debt to acquire energy-conserving infrastructure improvements under the conditions that the overall utility costs to the installation do not increase as a result of the contract and that any Air Force-incurred debt is secured by a guarantee of savings from the contractor. The savings generated must be a result of the contractor's (ESCO's) efforts and investment. To accomplish this, 42 U.S.C. 8287 authorizes the use of ESPCs, which are performance contracts

requiring the ESCO to guarantee sufficient savings to cover all costs associated with an energy conservation measure (ECM). The use of an ESPC requires a detailed understanding of its basic principles, how costs are assessed, and how risks are managed.

**7.1.2.** ESPC projects must be funded solely from the savings they generate. An ESPC has limited funding authority in that all ESPC costs must be funded out of ESPC savings. An installation's post-ESPC utility costs (i.e., energy and operations and maintenance [O&M]) plus the cost of the ESPC project cannot exceed the utilities costs prior to the implementation of the ESPC project. Thus, the costs cannot exceed the savings (i.e., energy and O&M) generated by the projects. The payment to the ESCO is contingent upon verification that the government realizes the guarantee of savings from the ESCO.

**7.1.3.** The ESCO is responsible for the design, acquisition, installation, M&V, and maintenance of the energy conservation project's (ECP) equipment or systems that produce the savings. An ESPC is not a design-build contract, however; it is a performance contract that requires the ESCO to guarantee the savings and the operation of the installed ECP equipment. This performance requirement places the responsibility for all equipment, O&M, parts, and materials that affect this guarantee upon the ESCO. This guarantee must be satisfied and verified at the acceptance of the ECP equipment and revalidated annually throughout the life of the TO.

**7.1.4.** Certain risks are always associated with implementing an ESPC for both the ESCO and the Air Force. The Air Force assumes the risk of any stipulations, including utility rates, hours of operation, and mission changes, during the life of the TO. These risks require a thorough understanding and evaluation to minimize unnecessary risks. The ESCO assumes the risk for the performance of the implemented ECM through its maintenance responsibility and guarantee of savings for the entire term of the contract. Again, careful consideration is essential to ensure that the Air Force is not assuming any of the ESCO's risk. See Attachment 4 for an example risk/responsibility matrix. The matrix provides a way for the ESCO and base to define each area of responsibility for each ECP within the TO. Using this matrix will help ensure that each party thoroughly understands its responsibilities and associated risks before the TO is awarded.

**7.2.** Guaranteed Savings. The ESCO shall provide a guarantee of savings to the agency and establish payment schedules reflecting such guarantee, taking into account any capital costs under the contract. The annual guaranteed savings are identified in two categories: energy and O&M savings. The ESCO must provide these figures for each year of the TO. The actual payment to the ESCO is based on the guaranteed savings amounts and not the calculated savings. These awarded TOs, like utility bills, are "must-pay" requirements and must be programmed into the annual utility budget process. See 42 U.S.C. 8287, Section 801(a)(2)(A).



### 7.3. Energy Costs.

**7.3.1.** Aggregate annual payments by the Air Force under an ESPC may not exceed the amount the agency would have paid for utilities without an ESPC during the TO term. ESPC costs can never exceed the energy and O&M savings. See 42 U.S.C. 8287, Section 801(a)(2)(B).

**7.3.2.** Energy costs are a major factor in determining project viability and actual payments to the ESCO. Energy costs will be determined by using historical data and the current local utility contract prices, and, if the utility has an approved price rate change, that figure can be used effective on the date of implementation of that rate change. Additionally, escalating energy costs can be used, but exercise extreme caution to ensure that escalated rates do not exceed the actual rates, which would result in false savings. Energy costs can be escalated at a rate no greater than the rates published in the current edition of NISTIR 85-3273-17, *Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis*, published as the annual supplement (April 2002 or latest supplement) to NIST Handbook 135, *Life-Cycle Costing Manual for the Federal Energy Management Program*. See 10 CFR 436, *Federal Energy Management and Planning Programs*.

**7.4. Maintenance Responsibilities.** Maintenance and repair is critical to sustain an ECM's guaranteed performance throughout the life of the TO. Because the ESCO is held responsible for the performance guarantee, the ESCO is also responsible for any factors that may affect this guarantee. Section 801(a)(2)(A) of 42 U.S.C. 8287 specifically requires that ESPCs "...shall provide that the contractor is responsible for maintenance and repair services...." The ESCO is responsible for all costs relating to the performance guarantee, including labor, supplies, parts, and materials for the term of the TO. These items should be identified in the total ECM cost if they are higher than current costs or the ESCO is conducting the maintenance, and there are no savings in current government-provided maintenance.

**7.4.1.** The base may physically perform the maintenance as long as the ESCO retains the ultimate responsibility for maintenance accomplishment for the length of the TO. Consequently, the language in the TO should clearly state that the ESCO is not transferring this responsibility to the base and the contractor is responsible for maintenance and repair services for any energy-related equipment, including computer software systems. The ESCO, being held responsible, is required to oversee and ensure that all maintenance is performed as required for each ECP within the TO.

**7.4.2.** If the base agrees to perform this function for the ESCO, it may require the ESCO to provide all parts and material needed to accomplish this service. All parts and material needed to maintain and repair an ECM must be paid from either captured O&M or energy savings. Without capturing these savings, the government cannot assure that the funds will be available to cover future O&M costs necessary for maintaining equipment performance.

**7.5. Capturing ESPC Savings.** Only O&M funds can be applied to an ESPC. Title 42 U.S.C. 8287 does not explicitly state where the “savings” may be derived, but it logically follows that utility energy savings and avoided maintenance costs can be included. Minor maintenance savings should be justified, normally using historical data. Larger replacement items are again not specifically mentioned. Use caution if applying anticipated cost avoidance to the ESPC due to major repair/replacement that may not be needed because of the ESPC. These items may not have historical data to back up expenditures but should still be justified as a future expense, for example as an engineering analysis or as life cycle predictions. If these major expenditures are included as captured savings, the installation should be aware that they will become a must-pay bill from O&M funds. Before these funds are included in an ESPC, the base and MAJCOM should agree to the funding source and create a record of decision to justify the action and agreement. See Paragraph (a)(1) and Section 8287a of 42 U.S.C. 8287.

**7.6. Annual Reconciliation.** Each year a verification of energy savings reconciliation must be accomplished for each awarded TO. This requirement includes an approved M&V plan using at least the current International Performance Measurement and Verification Protocol (IPMVP) at the time the TO was awarded (paragraph 9.1). During the annual reconciliation, the ESCO should confirm the adequacy of maintenance. See Paragraph (a)(2)(A) of 42 U.S.C. 8287.

**7.7. Replacement Cost.** Energy savings can only be captured if the equipment is installed by the ESCO and the ESCO remains responsible for its performance (paragraph 7.4).

**7.8. Buy Down.** ESPC costs can also be funded with installation funds used to buy down part of the existing TO, for example, end-of-year fallout funds. These one-time funds can be identified in the payment schedule to the ESCO upon acceptance of the ECM and commencement of the performance period, which allows for a lower financed amount and shorter term, thereby reducing interest costs over the term. Alternately, these funds can be applied as scheduled payments during the performance period, which can provide for additional projects that might not be possible otherwise. If, after award, O&M funds are used to buy down a portion of the TO, several steps are necessary: the use of these funds must be identified as soon as possible to the ESCO; the economics must be considered; prepayment penalties must be identified by the ESCO; and the life expectancy of the equipment must be considered (i.e., in year 11 of a 20-year TO term, it would not be wise to buy out a piece of equipment that has a life expectancy of 10-years).

**7.9. Buyout Issues.** When government actions (e.g., removal or demolition of installed ESCO equipment, or mission changes) result in annual guaranteed savings falling below annual payments to the ESCO, and the TO term cannot be extended, the buyout provision of the ECP/M will be exercised. Ensure that the TO clearly identifies penalties for buyouts.

## **8. Funding Requirements.**

**8.1.** Facilities that are encumbered with an ESPC may require a buyout of such encumbrances before non-ESPC work is performed. When government actions on a facility (e.g., demolition, upgrades, construction, or privatization) will impact the ESPC contractor's materials/equipment installed under an ESPC, or will otherwise alter the conditions of the contract, making the affected portion of the contract no longer valid, programming for the encumbered facility should consider funds to buy out the applicable portions of the contract. If possible, buyout funds should be programmed with the same fund source as the project itself; however, this may not be possible with all project categories.

**8.2.** Military construction (MILCON) funds cannot be applied to an ESPC.

**8.3.** Non-appropriated fund (NAF) functions may or may not be authorized to use appropriated O&M funds. NAF category C activities must not use savings from other than NAF to subsidize ESPCs. All actions affecting funding must be coordinated with the NAF funds manager.

**8.4.** Military family housing (MFH) funds are appropriated separately and used specifically for MFH purposes. MFH ECPs must use savings only from other MFH ECPs to avoid subsidizing or being subsidized by other than MFH-funded sources. Use of MFH funds for a purpose outside their appropriated use would result in a violation of the Purpose Act (31 U.S.C. 1301).

**8.5.** Reimbursable customers require separate accounting procedures to ensure that adequate payments are being applied to their accounts.

**8.6.** The base must provide the total contract cost for each phase of an ESPC and a final signed copy of the TO to AFCESA/CESM for tracking the contract ceiling. For a Phase I report, include the estimated investment cost provided by the ESCO. For a Phase II report, include the final negotiated contract amount encompassing the total cost over the life of the contract.

**8.7.** When a TO contains a cancellation ceiling in excess of \$10 million, congressional notification is required. See AFFARS 5317.191, *Special Contracting Methods - Congressional Notification*, and AFFARS 5341.201, *Acquiring Utility Services - Policy*. Congressional notification is submitted to SAF/AQC for all projects greater than \$10 million in investment costs.

**9. Best Practices.** The following best business practices are provided as recommendations to help the installation implement an ESPC. These suggestions will help in translating the requirements and applying the lessons learned toward achieving a successful ECM.

**9.1.** M&V Plan. The M&V plan is the cornerstone of an ESPC, ensuring the installation's ability to confirm that actual energy savings are occurring and are

verified in a reasonable, cost-effective manner. Using this plan annually guarantees to the base that the equipment installed is performing as predicted. Using a good M&V plan will help mitigate risk to the base, eliminate conflicts when systems fail to meet their expected savings, and ensure that the ESCO remains engaged with the base over the full term of the contract. All M&V plans should be in agreement with the most current IPMVP. Whenever possible, M&V, baseline development, and testing should be presented in the Air Force M&V format. For proper format, download current M&V templates from the AFCESA Web site at [http://www.afcesa.af.mil/ces/cesm/energy/cesm\\_prototypes.asp](http://www.afcesa.af.mil/ces/cesm/energy/cesm_prototypes.asp).

**9.1.1. Baseline Development.** An energy baseline is a prediction of the amount of energy that would have been used if no energy conservation equipment had been installed. The ESCO must clearly document the baseline data and ensure that the data taken adequately supports the baseline.

**9.1.1.1.** Actual metering and data collection should be performed by the ESCO and verified by the base to ensure that the baseline reflects realistic energy consumption upon which the savings calculations will be based. Data collection requirements vary by ECP and M&V method, but a minimum of three months' data is recommended for weather impacted ECPs. If the ESCO and the Air Force determine that simulation is the preferred methodology, the models must be validated (calibrated). Note: It is extremely important that equipment controlled by ambient temperature devices has valid measurements. Savings validation as well as future baseline adjustments will require this accurate data before adjustments can be applied to the existing baseline.

**9.1.1.2.** All assumptions made in the Phase I report should be validated in Phase II by the ESCO. Validation includes documenting all pertinent data and formulas used to compute the energy savings so the base energy manager can easily explain these savings now or in the future.

**9.1.1.3.** Baseline development and data collection should begin immediately after the initial kickoff meeting. The longer the data collection period, the lower the risk to the base and the ESCO (lower risks result in lower overall costs).

**9.1.1.4.** Review of the baseline by an independent party is recommended. The MAJCOM/base would pay the cost of these reviews.

**9.1.2. Performance Tests.**

**9.1.2.1.** A performance test is a process for achieving, verifying, and documenting the performance of equipment installed or modified as part of an ECP. The process begins in Phase II with the development and approval of a performance test plan that is implemented after the TO award. The performance tests will be accomplished during the construction phase to

certify that all equipment is functioning and operating properly and the results approved before conducting the energy savings verification tests.

**9.1.2.2.** The performance test plan developed as part of Phase II is prepared for each ECP. The performance test plan describes all aspects of the test process, including schedules, responsibilities, documentation requirements, and functional performance test requirements. The functional performance tests should describe at what conditions or loads the tests are to be performed, the location of test sensors, the frequency of measurements, the type of test equipment, the test methods, and the acceptable range of results. The level of detail depends on the complexity of the ECP. The performance testing plan should be detailed enough that prior to signing the TO award, the base knows exactly what tests will be performed.

**9.1.2.3.** After completion of the performance tests, a final acceptance report should be submitted for approval in writing to the base CO and base energy manager. The final acceptance report is submitted after all functional performance tests are completed. The final acceptance report should include the executive summary, ECP description, performance plan, and all test results.

### **9.1.3. Energy Savings Validation.**

**9.1.3.1.** A formal set of test procedures with the acceptable range of results should be developed to validate energy savings. These test procedures should be submitted by the ESCO at Phase II and approved before awarding the TO. The tests should describe at what conditions or loads the tests are to be performed, the location of test sensors, the frequency of measurements, the type of test equipment, the test methods, and the acceptable range of results. The test procedures should verify all energy savings guaranteed under the ECP/ECM.

**9.1.3.2.** After the base approves the performance test results for each ECP, the ESCO should perform the approved energy savings test procedures to validate the energy savings for each ECP.

**9.1.3.3.** Once the validated energy savings have been approved for all ECPs, payment will begin the first full month after acceptance of the ECM.

### **9.1.4. Annual Reconciliation Plan (Audit of Savings).**

**9.1.4.1.** Each ECP in the TO should have a detailed annual (at a minimum) reconciliation plan approved before the TO award. The plan should describe a formal set of test procedures, an acceptable range of results, a schedule of how reconciliation payments will be assessed if savings fall below the guarantee, and a certification by the ESCO that all O&M requirements and conditions have been met for each ECP in the TO.

**9.1.4.2.** The test procedures should be similar to those developed to validate energy savings. The purpose is to test, validate, and document the energy savings.

**9.1.4.3.** The CO must approve the annual reconciliation of savings after coordination by the base energy manager.

**9.1.4.4.** An independent audit of the ECP's savings should be performed every 5 years, and a report sent to the base CO, base energy manager, and MAJCOM energy manager. The MAJCOM/base will pay the cost of these reviews.

## **9.2. Maintenance Related to the TO.**

**9.2.1.** All maintenance is an ESCO responsibility and should be performed by the ESCO; however, in some cases the installation may have the capability to perform such maintenance. If maintenance is performed by the installation, the responsibility remains with the ESCO. Having the ESCO perform the maintenance eliminates the risk to the installation that a reduction of energy savings will result from improper routine maintenance by the installation.

**9.2.2.** If the base agrees to perform the maintenance, it should carefully consider the consequences should it become unable to perform in accordance with the maintenance schedule. Since the ESCO is ultimately responsible, it will determine if the government is meeting the TO requirements. If the base fails to perform proper maintenance, the ESCO may take over the maintenance and charge the base for performance. This will require modifying the TO, reworking the TO's financial provisions, and possibly extending the TO's term length or buying out if the TO term cannot be extended. When the base assumes maintenance, the ESCO must provide a detailed maintenance schedule reflecting when, how often, and by whom the maintenance is to be performed, as detailed in the Phase II report. Since all costs must be accounted for, the estimated cost of the ESCO performing the maintenance should be captured in the proposal and reflected in the cost analysis, but may not have to be included as a cost to the ECM. Additional cost must be reflected in the cost analysis as a cost to the ECM if maintenance costs increase over pre-ECP levels.

## **9.3. Pricing of TO Work.**

**9.3.1.** The installation should request that the ESCO provide detailed supporting documentation needed to determine price reasonableness.

**9.3.2.** ESCO estimates for each ECP should identify all major costs (e.g., equipment, labor, design, maintenance, repair, parts, overhead and profit [OH&P], travel, M&V). The government should also prepare an independent estimate.

**9.3.3.** Contingencies should be clearly identified and negotiated for each ECP in the Phase II reports. Contingency costs mitigate a project's risk, which is a factor in the profit negotiated; therefore, the level of contingencies for a project should be carefully considered. See FAR 31.205-7, *Contingencies*.

**9.3.4.** Ancillary savings are those that are not attributed to utility savings, such as manpower, materials, or elimination of contract-operated functions. Ancillary savings are any savings attributable to the project other than energy savings. Maintenance, repair, or operations costs for tasks currently being performed by the government or by a contractor hired by the government are ancillary savings if the ESCO assumes the tasks, reduces the tasks, or eliminates the tasks. The government will determine whether an ESCO-proposed task elimination or reduction would be considered an ancillary savings available for sharing. The government will provide the dollar value of the ancillary savings.

**9.3.4.1.** Government civilian positions must be deleted from the official manpower rosters or reallocated by the BCE to offset known manpower shortfalls before related savings can be added to the ESPC proposal. Use caution since O&M funds will need to be expended if positions are reallocated and credit is taken for manpower reduction.

**9.3.4.2.** Since only the final negotiated savings can be applied to the ESPC contract, all negotiated cost reductions due to the reduction or elimination of contract-operated functions should be completed before those savings are accepted in the proposed TO.

**9.4.** Equipment Ownership. The ESCO retains ownership of all installed equipment for the term of the contract.

**9.5.** Infrastructure Privatization. Any utility system or family housing being considered for privatization should not be included in ESPC efforts. Any utility system is defined as infrastructure outside the 1.5-meter (5-foot) line of the using facility, and includes production and distribution assets. If it is necessary to include a utility system in the ECP, the base should obtain a written agreement with the ESCO for the new utility system's owner to buy out that system should privatization take place.

**10. POC.** Recommendations for improvements to this ETL are encouraged and should be furnished to Mr. Alvin Day, HQ AFCESA/CESM, 139 Barnes Drive, Suite 1, Tyndall AFB, FL 32403-5319, DSN 523-6357, commercial (850) 283-6357, FAX DSN 523-6219, Internet [Alvin.day@tyndall.af.mil](mailto:Alvin.day@tyndall.af.mil).

JOSUELITO WORRELL, Colonel, USAF  
Director of Technical Support

- 5 Atchs
1. Example Coordination Sheet
  2. Recommended Instructions to ESCO
  3. Recommended ESPC Considerations for Base Energy Manager
  4. Risk/Responsibility Matrix
  5. Distribution List



## EXAMPLE COORDINATION SHEET

Title of Project: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 POC: \_\_\_\_\_  
 Suspense Date: \_\_\_\_\_

TO	Action	Signature (Surname),	Grade,	Date	Suspense Date
<b>BCE</b>					
Funds Mgr	COORD				
Energy Mgr	COORD				
Design Chief	COORD				
Environ Mgr	COORD				
Ops Chief	COORD				
Planner	COORD				
MFH	COORD				
Real Estate	COORD				
<b>BASE</b>					
Comptroller	COORD				
Legal	COORD				
<b>MAJCOM CE</b>					
CEO/CEC	COORD				
Funds Mgr	COORD				
Energy Mgr	COORD				

Base Contracting Officer: \_\_\_\_\_

For Congressional Notifications: Send copy of completed coordination sheet to AFCESA/CES.  
 Send copy of signed task order to AFCESA/CESM.

Comments: \_\_\_\_\_  
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## **RECOMMENDED INSTRUCTIONS TO ESCO**

**A2.1.** These instructions are provided as an aid to help communicate the basic ESPC requirements to the ESCO. They should be discussed early in the process, such as at the kickoff meeting. When the ESCO's proposal complies with these requirements, misunderstandings and lost effort that delay the process can be avoided. The purpose of this list is to advise the contractor of the government's concerns and position so the contractor can perform its audits and prepares its proposal accordingly. Additions to these instructions are encouraged; see paragraph 10 for POC information.

**A2.1.1.** Survey reports and audits should be well organized, clearly presented, logical, thorough, and complete, and should consider all ECPs that are or may be applicable. The Air Force encourages contractors to be innovative with regard to energy savings and cost-saving measures. The Air Force expects the energy service provider to go beyond those areas in which the ESCO has a strength or particular interest. While the Air Force expects to see traditional ECMs such as lighting retrofit and water conservation, the Air Force is also very interested in proposals that include: co-generation; use of waste heat; distributed generation; gas turbines; micro-turbines; fuel cells; geothermal heat pumps; steam turbines; backpressure steam turbines; energy-efficient (premium) motors; variable-speed and variable-frequency drives and fans; energy-efficient elevators; improved building envelopes and roofing systems; reflective or heat-reflective coatings; intelligent or photochromatic glass; solar screens; solar, wind, and other forms of renewable energy; peak shaving; thermal storage; real-time metering and pricing; fuel switching; continuous commissioning; and other forms of viable energy conservation and energy cost reduction that meet the requirements of E.O. 13123 authorizing alternative financing of energy conservation projects. If such possibilities are rejected, the grounds should be economic or some other basis the installation and the ESCO agree upon.

**A2.1.2.** Each ECP should be presented independently and include assumptions, calculations, and savings. This is necessary for the installation to make intelligent business choices about what to include and exclude from a project. ECPs that are logically part of one ECP should not be broken out as separate ECPs unless each ECP could stand on its own as an ECM.

**A2.1.3.** While innovative ECPs are encouraged, do not propose ECPs that do not meet the requirements of E.O. 13123 (i.e., savings can be verified based on sound engineering and accounting practices, interest rates are within Office of Management and Budget [OMB] guidelines, term of years for payout is appropriate, guarantee and M&V is appropriate).

**A2.1.4.** Be conservative and realistic about the savings that will be realized from a proposed ECM. Include the information used in arriving at the projected savings and detail the assumptions upon which this level of savings is predicated. Remember

that the ESCO will have to guarantee that the savings represented are actually produced by the work performed.

**A2.1.5.** Only savings that result from the direct action of the ESCO in implementing an ECP can be captured. For example, a proposal by an agency to move its computer room to another location or reduce its staffing levels will save energy at the building, but it was not brought about by the ESCO-installed ECP and cannot be counted as savings resulting from the contractor's project.

**A2.1.6.** Provide information regarding the interest rate that will be charged on the funds the ESCO will be providing so the Air Force can check and confirm that the appropriate rate is being applied. We recognize that the rate is dependent on numerous factors, including, but not limited to, the Treasury rate (20-year swap T-bill), credit worthiness, and the term of the loan. We expect, however, that the most favorable interest rate will be obtained, and we recommend that the ESCO explain the factors behind the proposed rate.

**A2.1.7.** Provide information regarding the contractor's overhead rates and burdens to the CO.

**A2.1.8.** Indicate how the proposal addresses the M&V requirements of the contract.

**A2.1.9.** Indicate the performance time of the project work, when work will begin, and when it will be completed. Include any deadlines for rebates and a schedule. All rebates will become the property of the Air Force or will be contractually obligated to the project to reduce the length of payout of the project. Provide sufficient information so the government can determine how many rebate dollars are being applied to the contract and how much this rebate reduces the length of the contract term. This information is required prior to the issue of a TO.

**A2.1.10.** Explain all ECPs, including those that have been considered by the ESCO but rejected as not feasible. Explain why the ECP that has been rejected is uneconomical or not practical; do not just state that the ECP is not economical, but also provide the reasoning behind this decision. Do not omit any government buildings in the assigned area from audit and evaluation.

**A2.1.11.** Provide a life cycle cost analysis for each proposed ECP. Using this information, the Air Force should be able to weigh the alternatives to various kinds of equipment that will be installed against the equipment's life cycle cost to the government. All equipment proposed for use must be as energy efficient as practical and, if possible, should be Energy Star<sup>®</sup> certified.

**A2.1.12.** In addition to the individual ECP-by-ECP breakout, include the total cost of the project to the government.

**A2.1.13.** The termination schedule can never exceed the contract cost. The termination fee should be reduced as the contract continues.

**A2.1.14.** Include information about any equipment manufacturer's warranty and any ESCO-provided warranty to the government.

**A2.1.15.** Identify any value-added features being provided to the government, such as the ability to operate with partial loads during weekend or overtime hours of operation, or rebates that will be available as a result of the work performed. Do not count the economics of any rebate towards the project unless you have confirmed that the rebate funds are available, will be received by the government, and that the project qualified for the rebate. Any shortfalls will be the liability and responsibility of the ESCO.

**A2.1.16.** Present the energy efficiency of each project on an ECP-by-ECP basis and include the payout term for each ECP. These payouts should be in line with other Air Force contracts for similar ECPs or your own operations installing this type of equipment.

**A2.1.17.** Do not propose M&V by a total building or utility bill monitoring basis. It is too difficult to isolate the cause of problems with an ECP and it also permits the total result to be influenced by things that have nothing to do with the particular ECP, its operation, or function. Thoroughly explain the M&V you are proposing and why. Use the Air Force M&V templates where appropriate.

**A2.1.18.** If necessary, ask questions so the Air Force can provide answers.

**A2.1.19.** The proposal should be evaluated to determine how the project will be conducted around normal business hours. Installation or construction work that can be done after business hours will avoid some disruption to the tenants.

**A2.1.20.** Present a plan for how the building will be kept operating while switching out equipment, and how utilities will be provided during cutover operations, if necessary. (Any associated cost should be included in the project's economic provisions.)

**A2.1.21.** Present a plan detailing how you intend to coordinate with the local building manager and tenant agencies.

**A2.1.22.** Do not propose ECPs that, while energy efficient in the short run, will impose increased or additional expenses on the installation in the long run. Do not propose less expensive (but also less efficient) equipment that will cost the government more in higher electricity bills than will be saved by the incremental price advantage of the less expensive equipment.

**A2.1.23.** Consult with the installation's engineering and technical staff regarding equipment selection.

**A2.1.24.** The cost of bonds or insurance must be included with the proposal. These projects, like other government construction projects, require bonds and insurance acceptable to the government for those performing work on government property.

**A2.1.25.** Remember that this is a performance contract: If the contracted results are not obtained, the ESCO has to pay the government the shortfall under the guarantee; therefore, include everything in the proposal that is necessary to accomplish the task.

**A2.1.26.** Submit a detailed plan and schedule for conducting the energy audits and surveys of the building. Indicate when audits will begin and end, and when reports will be submitted.

**A2.1.27.** The government has other government agencies or tenant agencies located in its buildings and facilities. These building tenants do not have authority to make changes to the ESPC work or to alter the contract. Only the Air Force CO has the authority to issue modifications or request changes to the scope of work. The ESCO should refer all such requests by a tenant agency to the Air Force.

**A2.1.28.** Where possible and feasible, conduct the M&V by remote monitoring of data loggers or other metering equipment over the Internet in order to reduce M&V costs.

**A2.1.29.** The contract must provide that the Air Force is entitled to and will receive copies of all data produced for the project, or any audits, studies, or evaluations leading up to the project, including copies of utility bills, economic analyses, plans, information from data loggers, and M&V reports and results. The Air Force gets free access to all data produced, regardless of who produced the data or for whom it was produced.

**A2.1.30.** The ESCO should place a sign in the lobby of the building (or other highly visible location) where an ECP is being performed to publicize the project and its benefits.

**A2.1.31.** The ESCO will note the age, material characteristics of a technical nature, and condition of any chillers or other major items of equipment that are to be removed from the project and sold or scrapped, and assign the value of each in the cost and price proposal. This salvage value is provided by the ESCO to the government as a credit against the contract value for taking possession of this equipment. The government retains the option that if it does not agree that the price indicated by the contractor is a fair value for the item, the government may arrange for the disposal or disposition of the item for its own account and may direct the credit of the funds obtained for the items against the contract amount.

**A2.1.32.** After the TO has been negotiated, agreed upon, and issued, amendments or changes to the TO cannot be made without the express written consent of the government. Further, because of the great difficulty of issuing modifications to the TO, modifications due to extraordinary circumstances require determination by the CO. Because this is a performance contract, any undisclosed cost or item or material or labor, cost overrun, delay, or omitted item, or incorrectly understated number of items required for this contract, of any nature whatsoever, will be at the sole cost and liability of the contractor.

**A2.1.33.** All equipment that is installed must include all the necessary controls, preparation work, wiring, piping, or other associated work needed to install the ECP. For example, but not by way of limitation, if lights are retrofitted, the wiring must be replaced at least back to the junction box or further if its condition indicates that such action is appropriate, and “tombstone” on lighting fixtures will be replaced. If there is any dispute, disagreement, or argument whether such action is required or not, it must be resolved by the parties in a manner acceptable to the government before issuing a TO. It is the intent that the government not be placed in a position where it has installed new energy-efficient lights but has had left in place an outdated and outmoded system of wiring to service those new lights. Each ECP is considered a complete system, including all components and related items and materials required to function effectively.

**A2.1.34.** When detailing the costs and expense for all equipment and labor for this project, include the costs and expense of removing and disposing of any unused wires, pipe, equipment, conduits or associated parts, controls, or materials that are no longer necessary for the operation of the equipment or the physical plant of the building or to Air Force operations. After removing materials, the surrounding areas must be restored to a satisfactory condition acceptable to the government’s inspectors. Old or unused material and equipment must not be abandoned in place (unless agreed to by the government in writing), but must be demolished and/or removed from the property, with any necessary repairs to patch holes or make the premises safe as part of the work performed by the contractor.

**A2.1.35.** The ESCO should bring its financial backers/lenders to the negotiations. Sometimes contract provisions that cause the transaction to be more expensive can be negotiated or eliminated. In addition, the Air Force will be able to educate the financial backers on the terms of the contract. ESPCs are government contracts backed by the full faith and credit of the United States.

**A2.1.36.** If the ESCO has ideas for reducing the cost, risk, or expense of a proposed project to all parties, those ideas should be discussed with the Air Force. The government will give them due consideration, and, if feasible, they may be adopted for use in the transaction.

**A2.1.37.** Problems often come up in negotiations regarding who will be liable for and responsible for the equipment after the installation period. Typically, the performance of maintenance will be negotiated and agreed upon as part of the contract. Regardless of how the maintenance is addressed, the equipment is the ESCO's responsibility for the entire term of the contract, including installation and the performance period. This is a performance contract and the equipment installed must be cost-effective over the life cycle. If the contractor needs to obtain insurance or extended warranties to cover the risk of a piece of equipment malfunctioning after it is installed but before the end of the contract term, this should be included as part of the contractor's proposal. It is often cheaper and easier to obtain insurance to cover equipment than it is to obtain extended manufacturer's warranties for the life of the contract term. The government expects the ESCO to use the most cost-effective means of addressing the problem that is mutually acceptable to the parties.

**A2.1.38.** The government expects that financial spreadsheets for a project will not include rebate money, buydown amounts, or government payments to the contractor in the project financing as amounts that incur interest for the entire term of the contract. If rebates are distributed to the project over a number of years, the project financing and economics of the project should reflect the rebate distribution accurately and in accordance with generally accepted accounting practices for the government sector.

**A2.1.39.** Annual M&V costs cannot be capitalized as project costs and financed. Annual M&V costs are considered part of the service portion of the contract and should be clearly identified and presented as an annual cost on the cost analysis spreadsheet used to determine the annual payments to the ESCO.

## **RECOMMENDED ESPC CONSIDERATIONS FOR BASE ENERGY MANAGER**

**A3.1.** Before proceeding with an ESPC, the base energy manager should consider the ideas and suggestions in this attachment. These considerations can assist the base energy manager in implementing a successful ESPC project.

**A3.1.1.** Though the ESCO brings technical energy expertise to the base energy program, the base energy manager should also have a plan to improve the energy efficiency of the buildings. Determine how to most efficiently plan and schedule the work to be accomplished. Ask local facility managers and operations staff for ideas on improving their building's operational characteristics. Local staff often know what equipment is failing or not operating in a proper manner due to design defects, age, or other reasons. Keep in mind your overall goals. This is not a wish list for your building managers and it is not an opportunity for an ESPC contractor to "cherry pick" the most profitable projects, leaving the less economical work for others. If that happens, the other work will never be completed, and you will be saddled with undesirable systems in their present condition. Keep in mind that an ESCO's costs and overhead will be greater for widely scattered buildings than it will be for facilities that are clustered together. Structure your packages of buildings to take maximum advantage of project economics. Include the less desirable projects with the more attractive projects, and ensure that the ESCO takes them as a package. Use the attractive savings from rapid payback projects like lighting retrofits to help support and subsidize the less economical work such as chiller and cooling tower replacement.

**A3.1.2.** The ESCO was awarded the contract based on its technical ability to address a wide variety of sound energy technologies. Do not accept a preliminary report that addresses only technology that the ESCO elected to consider. If the base energy manager is interested in the viability of a specific technology and the ESPC contractor states that the proposed technology is not economical, have the contractor explain why in writing.

**A3.1.3.** Use a multidisciplinary team to evaluate proposals. Be certain to consider the cost of maintenance and repairs after equipment is installed, as well as items such as the equipment's noise level. Each ECP should be evaluated on a life-cycle cost basis, and energy-efficient or Energy Star<sup>®</sup> equipment should be used in the project where possible.

**A3.1.4.** Future energy commodity pricing is very difficult to predict. Where practicable, consider having building energy management or advance pulse interval metering and load profile data recording devices installed as part of the contract. It is often difficult to assign energy savings value to such equipment, so be prepared for these issues. The importance of having this advanced metering technology available for obtaining the best energy procurement prices after deregulation cannot be overstated.



**A3.1.5.** Ensure a clear understanding with the ESPC contractor on expectations and goals.

**A3.1.6.** Keep the terms and provisions of the ESPC TO as straightforward and clear as possible, without, for example, all sorts of added O&M savings or escalators for cost of fuel and services. Look at each ECP and determine how it contributes to the overall project. Look at its length of payoff and the impact of its removal or inclusion on the overall project economics. Make the appropriate business trade-offs and establish an optimal scope of work for the project. A project may be modified later if you want to include some O&M savings to accomplish a desired goal; however, before you make this kind of modification, make sure the O&M savings are real and can be demonstrated to be obtainable.

**A3.1.7.** The greatest areas of contention may be the terms of the guarantee and the terms of M&V to confirm that energy savings have been achieved. Some common assumptions regarding matters such as the occupancy level of the building, comfort level setback points for the heating, ventilating, and air conditioning (HVAC) systems, the baseline level of energy use, and the procedures for future changes to the building or its systems must be considered and an agreement reached. The base cannot expect to escape its obligations under the guarantee because of minor or insignificant events (e.g., filters not changed as often as the ESCO thinks they should be). Agreement up front will discourage disputes over these matters later on. As energy prices are generally rising, by steadfastly insisting that the ESCO fund based on present-day valued energy savings, we are providing additional value to the government when energy prices do indeed increase.

**A3.1.8.** Either obtain load profiles or have the ESCO obtain load profiles and then go to the building during the peak energy use period. Tour the building and make observations about the operation of energy-using equipment. Determine if any equipment use or power loads could be shifted to a non-peak period of energy use. If not, explore peak shaving, thermal load shifting, and other means of saving energy and costs that could be used to cut expenses. Consider the use of automated building management systems and timed-out electronic locks on non-essential equipment so it cannot be operated during periods of peak demand.

**A3.1.9.** The importance of coordination cannot be overstated. Pay attention to detail and follow up on everything. Be sure to involve the MAJCOM, and base engineering, construction, contracting, finance, and legal functions before awarding the TO.

**A3.1.10.** Coordinate with the local utility service providers. If you are considering a project that would allow you to go from a firm natural gas service rate to an interruptible service rate, check first to make sure an interruptible service rate is available or that one can be obtained from another service provider.

**A3.1.11.** Determine if rebates are available from the utility or from the ESPC contractor to help finance the cost of ECPs.

**A3.1.12.** A common area of contention is the contract language addressing M&V issues. Make sure there is a clear understanding and clear contract language addressing how much M&V is to be performed. Become familiar with the latest version of the IPMVP and make use of the M&V protocols in your contract. M&V must comply with the requirements of the Energy Policy Act of 1992. Use the Air Force M&V templates where appropriate.

**A3.1.13.** All MFH ECPs should be thoroughly evaluated against future MFH renovations or new housing initiatives for possible reduction or elimination of projected ESPC savings. When ECP savings are eliminated or greatly reduced, a buyout may be required. The base programming function should include the cost of the ECP buyout on the Department of Defense form (DD) 1391, **Military Construction Project Data**. Before proceeding with any ESPC project in MFH, coordinate with the MAJCOM housing office and the Office of the Civil Engineer, Housing Division (ILE/ILEH) to identify and eliminate any potential conflict with current or planned MFH projects.

**A3.2.** Additions to this list are encouraged; see paragraph 10 for POC information.

## ESPC Contract Risk/Responsibility Matrix

RESPONSIBILITY DESCRIPTION	ESCO PROPOSED APPROACH	AGENCY ASSESSMENT
<b><u>Financial:</u></b>		
<b><u>Interest Rates:</u></b> Neither the ESCO nor the agency has significant control over prevailing interest rates. During all phases of the project, interest rates will change with market conditions. Higher interest rates will increase project cost, financing/project term, or both. The timing of the delivery order signing may impact the available interest rate and project cost. Clarify when the interest rate is locked in, and if it is a fixed or variable rate.		
<b><u>Energy Prices:</u></b> Neither the ESCO nor the agency has significant control over actual energy prices. For calculating savings, the value of the saved energy may either be constant, change at a fixed inflation rate, or float with market conditions. If the value changes with the market, falling energy prices place the ESCO at risk of failing to meet cost savings guarantees. If energy prices rise, there is a small risk to the agency that energy saving goals might not be met while the financial goals are. If the value of saved energy is fixed (either constant or escalated), the agency risks making payments in excess of actual energy cost savings.		
<b><u>Construction Costs:</u></b> The ESCO is responsible for determining construction costs and defining a budget. In a fixed-price design/build contract, the agency assumes little responsibility for cost overruns. If construction estimates are significantly greater than originally assumed, however, the ESCO may find that the project or measure is no longer viable and drop it. In any design/build contract, the agency loses some design control. Clarify design standards and the design approval process (including changes) and how costs will be reviewed.		
<b><u>M &amp; V Costs:</u></b> The agency assumes the financial responsibility for M&V costs directly or through the ESCO. If the agency wishes to reduce M&V costs, it may do so by accepting less rigorous M&V activities with more uncertainty in the savings estimates. Clarify what performance is being guaranteed (equipment performance, operational factors, energy cost savings) and that the M&V plan is detailed enough to satisfactorily verify it.		
<b><u>Delays:</u></b> Both the ESCO and the agency can cause delays. Failure to implement a viable project in a timely manner costs the agency in the form of lost savings, and can add cost to the project. Clarify the schedule and how delays will be handled.		

## ESPC Contract Risk/Responsibility Matrix

RESPONSIBILITY DESCRIPTION	ESCO PROPOSED APPROACH	AGENCY ASSESSMENT
<b><u>Major Changes in Facility:</u></b> The agency (or Congress) controls major changes in facility use, including closure. Clarify responsibilities in the event of a premature facility closure, loss of funding, or other major change.		
<b><u>Operational:</u></b>		
<b><u>Operating Hours:</u></b> The agency generally has control over the operating hours. Increases and decreases in operating hours can show up as increases or decreases in "savings" depending on the M&V method (e.g., operating hours times, improved efficiency of equipment vs. whole building, utility analysis). Clarify if operating hours are to be measured or stipulated and what the impact will be if they change. If the equipment loads are stipulated, the baseline should be carefully documented and agreed to by both parties.		
<b><u>Load:</u></b> Equipment loads can change over time. The agency generally has control over hours of operation, conditioned floor area, intensity of use (e.g., changes in occupancy or level of automation). Changes in load can show up as increases or decreases in "savings" depending on the M&V method. Clarify if equipment loads are to be measured or stipulated and the impact if they change. If the equipment loads are stipulated, the baseline should be carefully documented and agreed to by both parties.		
<b><u>Weather:</u></b> A number of energy efficiency measures are affected by weather. Neither the ESCO nor the agency has control over the weather. Changes in weather can increase or decrease "savings" depending on the M&V method (e.g., equipment run hours times efficiency improvement vs. whole building utility analysis). If weather is "normalized," actual savings could be less than payments for a given year but will "average out" over the long run. Weather corrections to the baseline or ongoing performance should be clearly specified and understood.		
<b><u>User Participation:</u></b> Many energy conservation measures require user participation to generate savings (e.g., control settings). The savings can be variable and the ESCO may be unwilling to invest in these measures. Clarify what degree of user participation is needed and utilize monitoring and training to mitigate risk. If performance is stipulated, document and review assumptions carefully and consider M&V to confirm the capacity to save (e.g., confirm that the controls are functional).		

## ESPC Contract Risk/Responsibility Matrix

RESPONSIBILITY DESCRIPTION	ESCO PROPOSED APPROACH	AGENCY ASSESSMENT
<b><u>Performance:</u></b>		
<b><u>Equipment Performance:</u></b> Generally the ESCO has control over the selection of equipment and is responsible for its proper installation and performance. Generally the ESCO has responsibility to demonstrate that the new improvements meet expected performance levels, including standards of service and efficiency. Clarify who is responsible for initial and long-term performance, how performance will be verified, and what will be done if performance does not meet expectations.		
<b><u>Operations:</u></b> Responsibility for operations is negotiable, and it can impact performance. Clarify how proper operation will be assured. Clarify responsibility for operations and the implications of taking on the operation of the equipment.		
<b><u>Maintenance and Repair:</u></b> Responsibility for maintenance and repair is negotiable; however, it is often tied to performance. Clarify how long-term maintenance and repair will be assured, especially if the party responsible for long-term performance is not responsible for maintenance. Clarify who is responsible for ECM overhaul and component or equipment repair required to maintain operational performance throughout the contract term.		
<b><u>Equipment Replacement:</u></b> Responsibility for replacement of contractor-installed equipment is negotiable; however, it is often tied to ECM performance. Clarify who is responsible for replacement of failed components or equipment throughout the term of the contract. Specifically address potential impacts on performance due to equipment failure. Life of equipment is critical to ECM performance during the contract term. Specify equipment life expected for all installed equipment and specify warranties proposed for the installed ECMs.		

## **DISTRIBUTION LIST**

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Design and Construction Division		ATTN: RE-C	
2250 Foulis St., Suite 2		PO Box 660202	
Lackland AFB, TX 78236		Dallas, TX 75266-0202	

### **SPECIAL INTEREST ORGANIZATIONS**

Information Handling Services	(1)	Construction Criteria Database	(1)
15 Inverness Way East		National Institute of Bldg. Sciences	
Englewood, CO 80150		1201 L Street NW, Suite 400	
		Washington, DC 20005	